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Fleet Vehicles and FCEV Market Introduction – Prerequisite or Complementary Development?

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IEA Hydrogen Roadmap
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Hydrogenics is a leader in water electrolyzers and hydrogen fuel cell power systems

Onsite Generation Electrolyzers



Industrial hydrogen



Hydrogen fueling

Power Systems Fuel Cell Modules



Stand-by power



Mobility power

Energy Storage Power-to-Gas



Fuel Cell Buses successfully deployed around the world



Growing penetration of FCEV fleet trials as well



Basel, Switzerland



Toronto, Canada



Berlin, Germany



North Rhine Westphalia, Germany



Port of Los Angeles, CA, USA



Joint Base Hickham-Pearl Harbor



Palm Springs, CA, USA



TACOM/General Motors

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A brief case study: propane fuelled fleet vehicles

Toronto Airport Limousine Fleet



- Lower emissions
- Longer engine life
- 30 propane fuelling stations in GTA
- Cheaper fuel
- Proven success story



- No closer to propane vehicle market introduction

Source: Wheels.ca, December 3, 2012

Fuel Cell powered fleet vehicles can help stimulate FCEV market introduction but it is not a sufficient condition

Benefits of Fleet Vehicles

- Zero emission transport in downtown core
- Mobile billboards promote awareness
- Engagement of City Officials for FCEV transit programs
- Fleet vehicle adoption will demonstrate viability
- Potential stepping stone to help build manufacturers' scale

Missing Pieces for FCEV Market Introduction

- Fleet depot fueling station will not help provide critical mass of hydrogen fuelling infrastructure required
- Car manufacturers making investment to scale up production for consumer cars

Opportunity

- Potential for building complementary fuelling infrastructure

The Vattenfall hydrogen fuelling station serving both bus fleets and FCEVs is a good example



Hamburg, Germany

780kg/day, 350/700 bar dispensing

Located in the center of Hamburg in front of “Der Spiegel” newspaper offices, the station is the biggest worldwide, capable to refill busses and passenger cars. The station has 120Nm³/h electrolyzers, 430kg 45bar storage and 250kg 830bar storage and follows the SAEJ 2601 refueling protocol.